

2014 Wisconsin Health Trends

Making Wisconsin the Healthiest State



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University of Wisconsin
Population Health Institute
SCHOOL OF MEDICINE AND PUBLIC HEALTH



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Executive Summary

2014 Wisconsin Health Trends: Progress Report

Background

The Wisconsin State Health Plan for 2020 established a goal for everyone to live longer and better. Progress toward this goal can be measured by monitoring health outcomes, and the factors that contribute to those outcomes, for the state's population overall, as well as by considering the health status of specific populations within the state. This third annual report assesses progress for 20 health indicators in Wisconsin by assessing trends over the past 10 years and by determining whether current rates are better or worse than expected.

Approach

Ten-year trends for 20 leading health indicators were measured and compared to the standard developed for Healthy People 2020 of improvement of at least one percent per year. To assess recent trends, the most current rates for these indicators were compared to the expected rate had the baseline trend continued.

In addition, where data were available, we report on both 10 year trends and current performance on these leading health indicators by gender, race and ethnicity, geography, and level of educational attainment.

Results

In the 2014 report, considering the population of the state in total, mortality trends for all age groups in Wisconsin are continuing to improve. The greatest improvements were among children/young adults and older adults (ages 1-24 and 65+).

Two other health outcomes continue to be a cause for concern: the rate of low birthweight infants continues to increase and an increasing percentage of adults report their health as fair or poor.

Within health behaviors, both teen births and excessive drinking continue to show decreasing trends. However, chlamydia rates, a new measure this year, and obesity rates continue to increase.

Although the most recent values for all socioeconomic factors are better than expected, overall the trends are still worsening for all socioeconomic factors (high school drop-outs, unemployment, children in poverty, and violent crime rate).

The picture is quite different for specific subgroups within the state's population. For example, the percentage of children in poverty is much higher for those in urban counties compared to those living in rural, non-urban and suburban counties. African American infants are almost twice as likely to be born at a low birthweight compared to other racial/ethnic subgroups. Smoking rates are almost five times as high for those without a high school degree compared to those with a college degree. Male death rates are higher than female death rates among every age group. Readers can find more disparity graphs by gender, race/ethnicity, geography or socioeconomic status on our website (<https://uwphi.pophealth.wisc.edu/programs/match/healthiest-state/progress-report/2014/disparity.htm>).

Summary

Wisconsin is making progress toward the 2020 goal of living longer. However, these data suggest that not everyone in the state is living better. Many of the trends Wisconsin is experiencing, including increasing rates of adult obesity, low birthweight babies, and people who report their overall health to be fair or poor, along with worsening social and economic factors, if left unaddressed, will lead to poorer health outcomes and more disparities in the future. Current trends in health outcomes and health factors are markedly different for different subgroups within the state's population. Efforts to improve health in Wisconsin must consider the full array of factors that influence how long and how well we live, and must begin with analysis of the circumstances that may produce longer healthier lives for some, but not all, of the state's residents.



Overview of the *Wisconsin Health Trends: Progress Report*






The **2014 Wisconsin Health Trends: Progress Report** provides a way to assess whether Wisconsin is achieving the twin goals of the [Wisconsin State Health Plan: Healthiest Wisconsin 2020](#): Improve health across the life span, and eliminate health disparities and achieve health equity.

How we measure health




The 20 health indicators examined in this report are based on a model of population health that emphasizes that many factors, if improved, can contribute to longer, healthier lives for all. Health outcome and factor measures were chosen based on the *County Health Rankings & Roadmaps* model which reflects that health behaviors, clinical care, socioeconomic factors and the physical environment all impact length and quality of life. The measures included in this report are dynamic - they have the potential to change annually. In addition, targeted local and state-level interventions can result in health improvement.

How progress is assessed

We calculated the annual percent change (APC) for each of the 20 health indicators during the past 10 years. An increasing annual percent change indicates a worsening health trend, while a decreasing annual percent change indicates an improving health trend.

- A  or  indicates Wisconsin improved on the health indicator during the past 10 years;
- A  indicates Wisconsin's performance on the health indicator has been stable; and
- A  or  indicates Wisconsin's performance worsened during the past 10 years.

Using these baseline trends, we determine what the "expected" current rate would be for each indicator if the past 10 year trend continued. We compare this expected rate to the current "observed" rate, to see if it is better or worse. Current progress is determined by calculating the percent difference between the observed and expected rates.

- A  indicates Wisconsin is performing better than expected for the health indicator;
- A  indicates Wisconsin is performing about the same as expected; and
- A  indicates Wisconsin is performing worse than expected for the health indicator.











The *Wisconsin Health Trends: Progress Report* is useful for public health professionals, policy makers, those engaged in local health improvement initiatives, and concerned citizens who are interested in assessing long-term and recent trends in leading health indicators. Readers of the *Progress Report* may wish to use its findings to begin or expand efforts to improve Wisconsin's performance on one or more of these leading health indicators. To identify evidence-based strategies that promote health improvement, visit whatworksforhealth.wisc.edu. To find resources to develop an action plan that works for your community, please visit countyhealthrankings.org.

In addition to the *Wisconsin Health Trends: Progress Report*, information on health trends among specific subgroups is now available online. Where available, baseline trend and current year data are graphed for the 20 leading health indicators included in this report broken down by gender, race/ethnicity, geography, and social and economic status. These graphs reveal how disparities in health factors and health outcomes within the state have improved or worsened in the last ten years. The graphs can be found at <http://uwphi.pophealth.wisc.edu/programs/match/healthiest-state/progress-report/2014/disparity.htm>. An example of the disparity graphs can be found on page 6.













Wisconsin Health Trends: 2014 Progress Report

Health Outcomes

Current Rate (versus expected)				
Baseline Trend	Progress	Worse  	No Difference 	Better  
	Worse  		Self-reported health Low birthweight	
	No Change 			
	Improved  	All ages death rate Premature death (< 75) rate 25-64 year old death rate 65+ year old death rate	Infant death rate 1-24 year old death rate	




Health Factors

Current Rate (versus expected)				
Baseline Trend	Progress	Worse  	No Difference 	Better  
	Worse  	Chlamydia rate	Obesity Violent crime rate	No health insurance (18-64) High school drop-outs Unemployment Children in poverty
	No Change 			Air pollution
	Improvement  		Smoking Excessive drinking No health insurance (0-17)	Teen birth rate

Baseline Trend Progress

	= $APC^* > +1.0\%/year$
	= $+1.0\%/year \geq APC > +0.5\%/year$
	= $+0.5\%/year \geq APC \geq -0.5\%/year$
	= $-0.5\%/year > APC \geq -1.0\%/year$
	= $-1.0\%/year > APC$

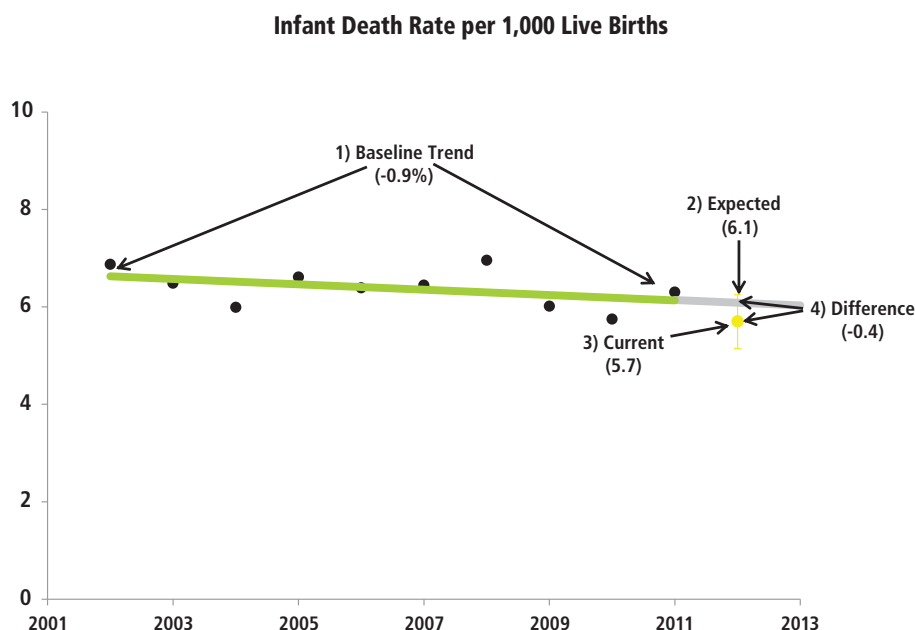
Current Progress




	= Current Rate is worse than expected rate ($p < 0.10$)
	= Current rate is no different than expected rate
	= Current rate is better than expected rate ($p < 0.10$)

*APC = Annual Percent Change

How to Interpret the Report

The *Wisconsin Health Trends: Progress Report* is useful for examining how the rates of specific health indicators have changed over the past year, compared to long term trends. Here is a guide to understanding the numbers and graphs provided in this report:



1. The known data points for the 10 years prior to the current year are graphed and a best fit linear regression is added to the graph. A decreasing line () indicates improvement: this example shows a reduction in infant deaths.
2. The line is extended in order to show the expected value if Wisconsin continued with the same trend as in the previous 10 years ().
3. The current observed value () is shown along with its 90% statistical confidence interval (where possible). Comparing this point to the expected trend line provides a comparison of how well Wisconsin is doing currently compared to what was expected.
4. The difference is calculated as:

$$\text{Percent Difference} = \frac{\text{observed value} - \text{expected value}}{\text{expected value}} \times 100$$

For the infant death rate example above, the baseline trend shows that infant mortality rates decreased 0.9% per year (i.e., an improving trend). This is good news for Wisconsin. The trend is improving and the current rate (2012, the most recent year of data available), is 7.2% less than expected (5.7 vs. 6.1). This indicates that Wisconsin performed much better than expected, suggesting continued improvement in infant deaths moving forward.

2014 Health Progress Assessment

			CURRENT YEAR				10 YR. TREND	
		Measure	Current Observed Rate	Expected	Percent Difference	Current Progress	Baseline Trend (% change/year)	10-year Trend Progress
Health Outcomes		All ages death rate (per 100,000)	707	692	+2.1	🔴	-1.1	⬇️
		Premature death rate (YPLL-75 per 100,000)	5714	5548	+3.0	🔴	-1.2	⬇️
		Infant death rate (per 1,000)	5.7	6.1	-7.2	🟡	-0.9	⬇️
		1-24 year old death rate (per 100,000)	33.5	31.5	+6.4	🟡	-3.0	⬇️
		25-64 year old death rate (per 100,000)	283	273	+3.4	🔴	-0.7	⬇️
		65+ year old death rate (per 100,000)	4274	4205	+1.6	🔴	-1.1	⬇️
		Low birthweight (%)	7.2	7.1	+0.8	🟡	+0.6	⬆️
		Self-reported poor or fair health (%)	14.0				+1.6	⬆️
Health Factors	Health Behaviors	Smoking (%)	20.4				-2.5	⬇️
		Obesity (%)	29.7				+3.1	⬆️
		Excessive drinking (%)	22.8				-1.4	⬇️
		Teen birth rate (per 1,000)	22.1	25.9	-14.7	🟢	-2.5	⬇️
		Chlamydia rate (per 100,000)	433	405	+6.9	🔴	+2.8	⬆️
	Clinical Care	No health insurance (0-17) (%)	7.0				-3.6	⬇️
		No health insurance (18-64) (%)	14.6				+1.8	⬆️
	Social and Economic Factors	High school drop-outs (%)	1.9	2.2	-14.9	🟢	+0.9	⬆️
		Unemployment (%)	6.7	8.1	-17.0	🟢	+5.9	⬆️
		Children in poverty (%)	18.3	19.0	-3.8	🟢	+5.1	⬆️
		Violent crime rate (per 100,000)	280	283	-0.9	🟡	+2.3	⬆️
	Physical Environment	Air Pollution (µg/m³)	9.6	10.6	-9.4	🟢	-0.3	➡️

Current Observed Rate = Rate or percentage provided for the most current year from the data sources

Expected = Value expected for the current year using a 10-year linear regression model for the previous ten years

Percent Difference = (Observed Value – Expected Value) / Expected Value * 100

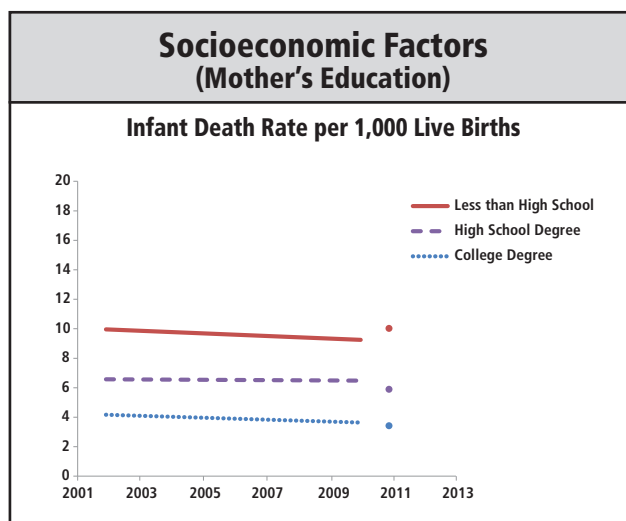
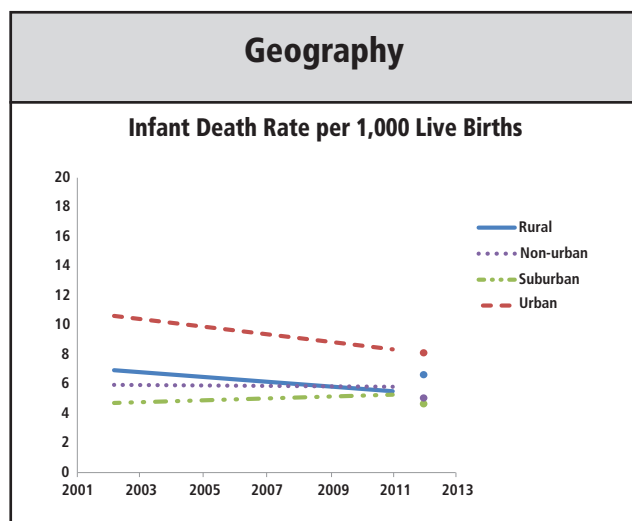
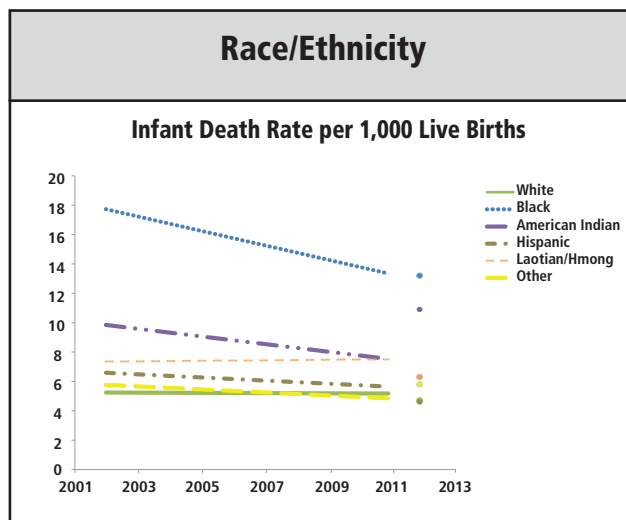
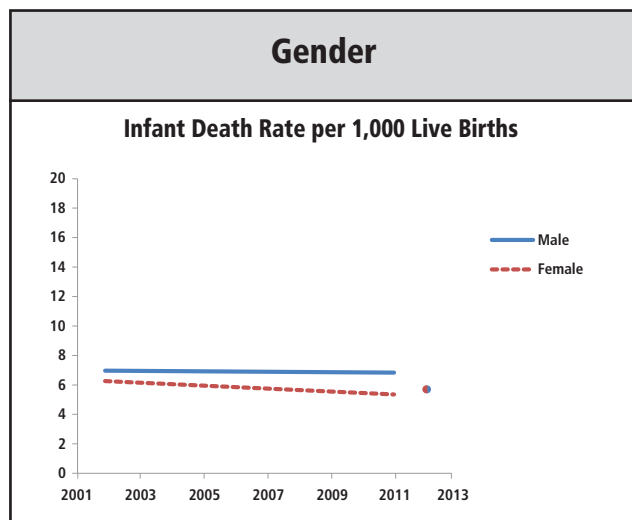
Current Progress = Based on magnitude and significance of the percent difference value (see page 3 for cut-off values)

Baseline Trend = $(e^b - 1) * 100$ where e=exponential function and b=slope of the logarithmic trend-line

Trend Progress = Based on magnitude of the baseline trend (see page 3 for cut-off values)

Health Disparity Trend Graphs

The complete set of health disparity trend graphs is available at uwphi.pophealth.wisc.edu/programs/match/healthiest-state/progress-report/2014/disparity.htm. Examples based on infant death rates are provided below.

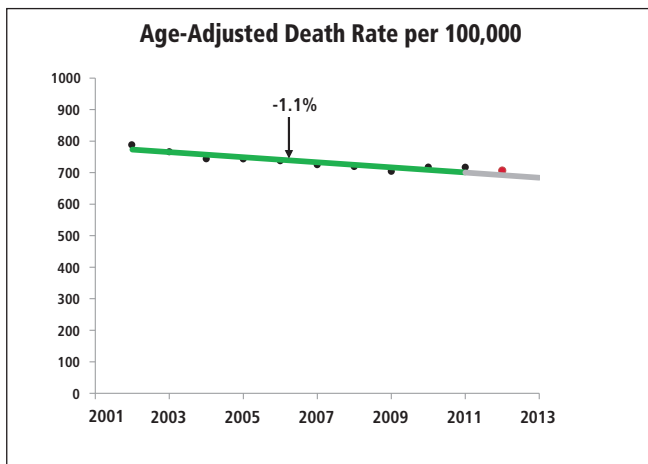


Although Wisconsin's infant death rate is decreasing overall, disparities by subgroup are apparent when the trend and current values are broken out by gender, race/ethnicity, geography, and socioeconomic level. The 10-year trend for infant deaths is worsening for the subgroups where the trend line is increasing, e.g., in the race/ethnicity graph, for the Laotian/Hmong subgroup. And, Wisconsin has significant work to do in order to bring infant death rates for all subgroups down to the levels of the healthiest subgroup. For example, although the African American infant death trend line shows improvement, this trend line still reflects rates that are between two and three times as high as those for whites and Hispanics.

Health Outcome Trends

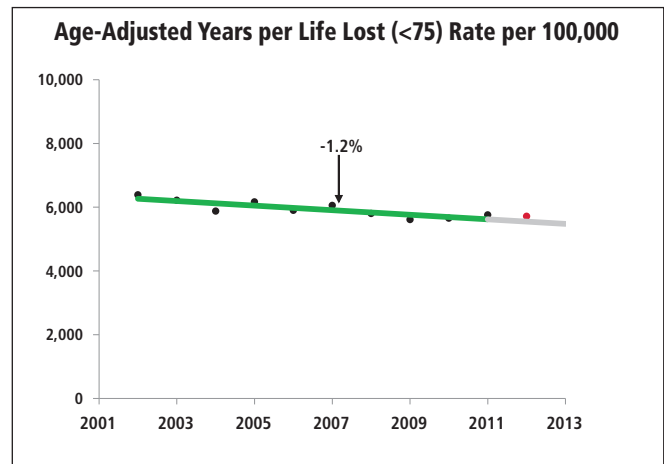
All Ages Death

Baseline Trend = -1.1%/year Much Better ↘
 Current Rate (vs. Expected) = +2.1% Worse ●



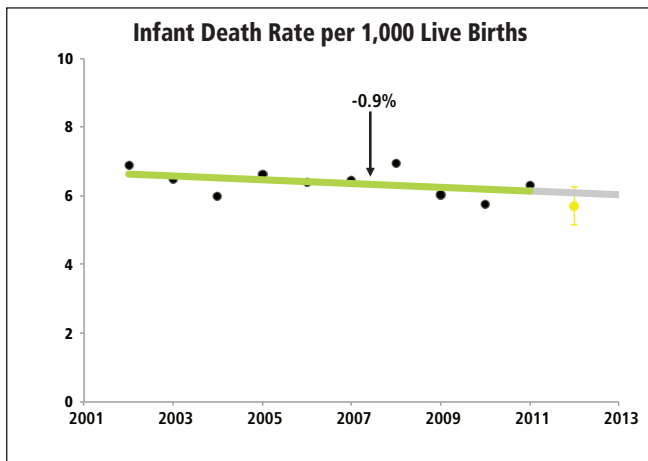
Premature Death

Baseline Trend = -1.2%/year Much Better ↘
 Current Rate (vs. Expected) = +3.0% Worse ●



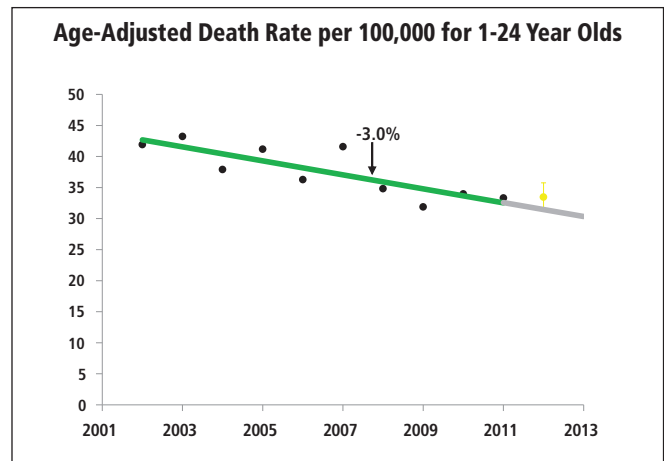
Infant Death

Baseline Trend = -0.9%/year Better ↘
 Current Rate (vs. Expected) = -7.2% No Difference ●





1-24 Year Old Death

Baseline Trend = -3.0%/year Much Better ↘
 Current Rate (vs. Expected) = +6.4% No Difference ●

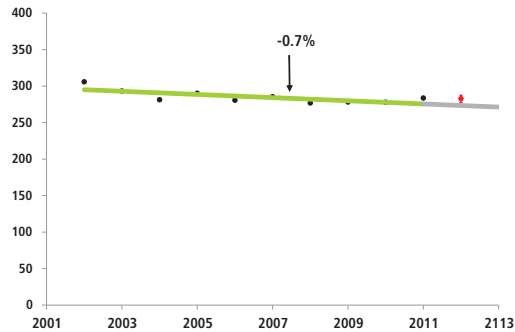


Health Outcome Trends (continued)



25-64 Year Old Death

Baseline Trend = -0.7%/year Better 
 Current Rate (vs. Expected) = +3.4% Worse 

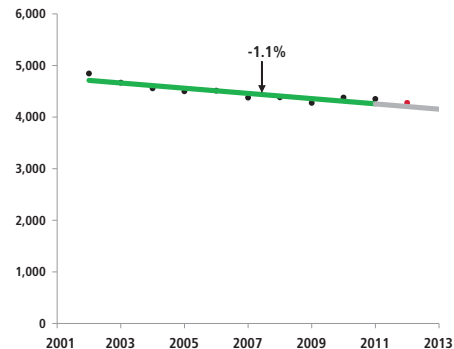
Age-Adjusted Death Rate Per 100,000 for 25-64 Year Olds





65+ Year Old Death

Baseline Trend = -1.1%/year Much Better 
 Current Rate (vs. Expected) = +1.6% Worse 

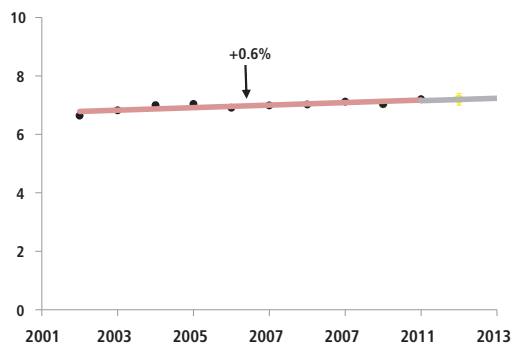
Age-Adjusted Death Rate per 100,000 for 65+ Year Olds




Low Birthweight

Baseline Trend = +0.6%/year Worse 
 Current Rate (vs. Expected) = +0.8% No Difference 

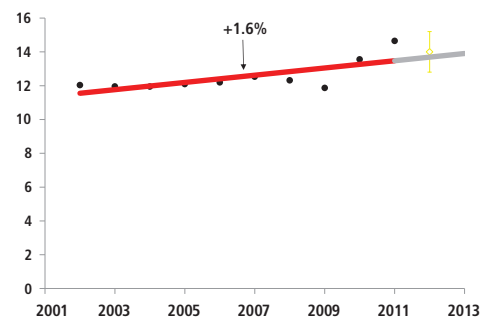
Births less than 2500 Grams (%)



Self-Reported Health

Baseline Trend = +1.6%/year Much Worse 

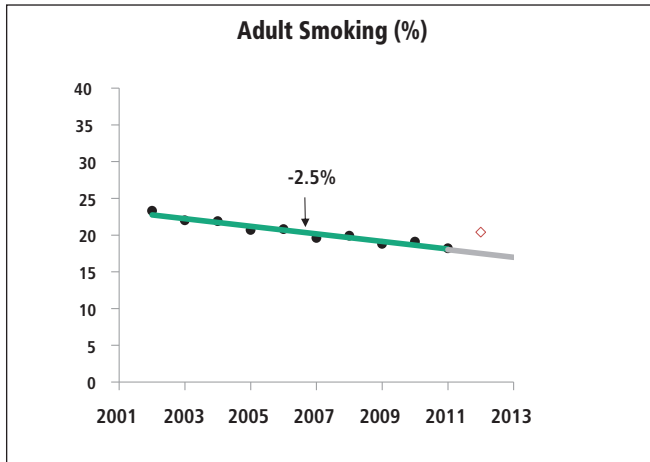
Adults with Fair or Poor Health (%)



Health Behavior Trends

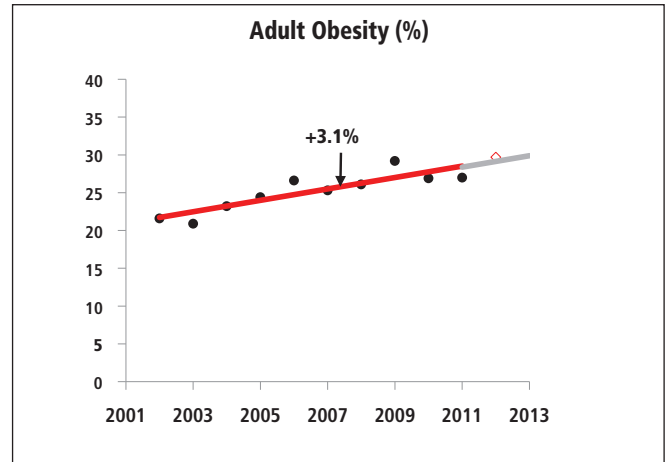
Smoking

Baseline Trend = -2.5%/year Much Better ↘



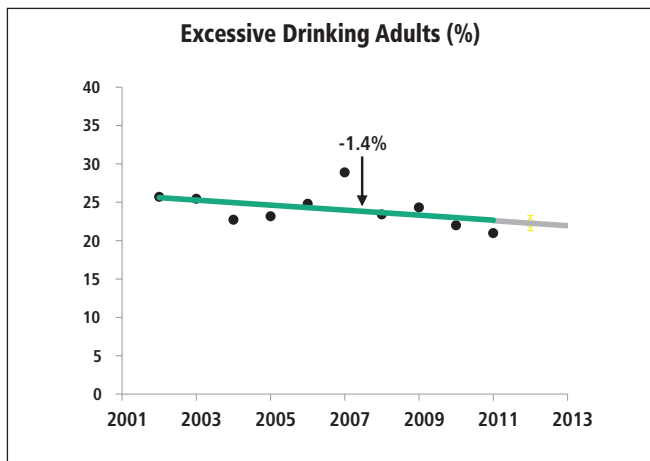
Obesity

Baseline Trend = +3.1%/year Much Worse ↗



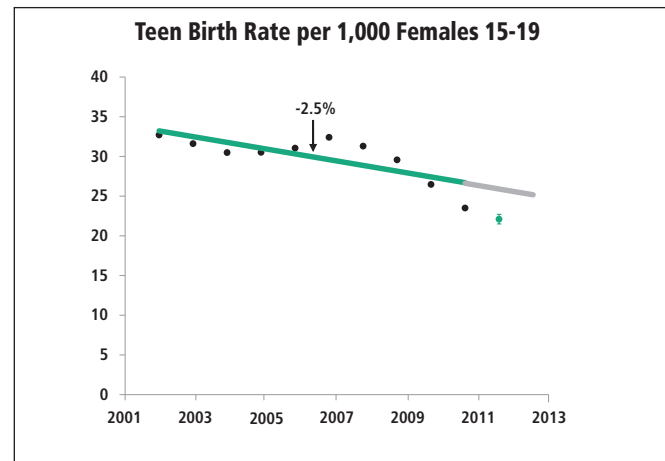
Excessive Drinking

Baseline Trend = -1.4%/year Much Better ↘




Teen Birth Rate

Baseline Trend = -2.5%/year Much Better ↘
Current Rate (vs. Expected) = -14.7% Better ●

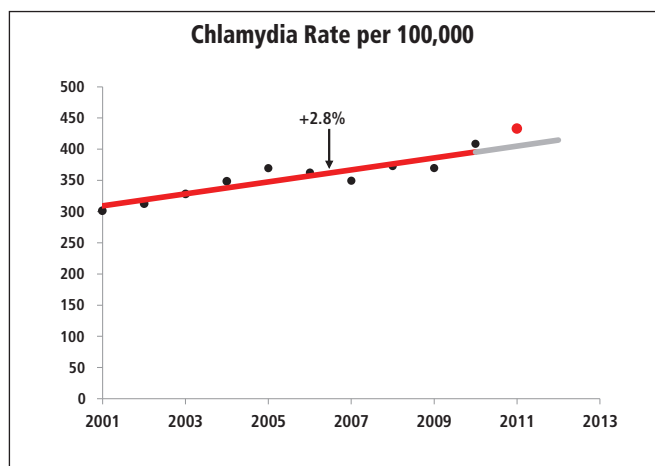


Health Behavior Trends (continued)

Chlamydia Rate


Baseline Trend = +2.8%/year Much Worse 

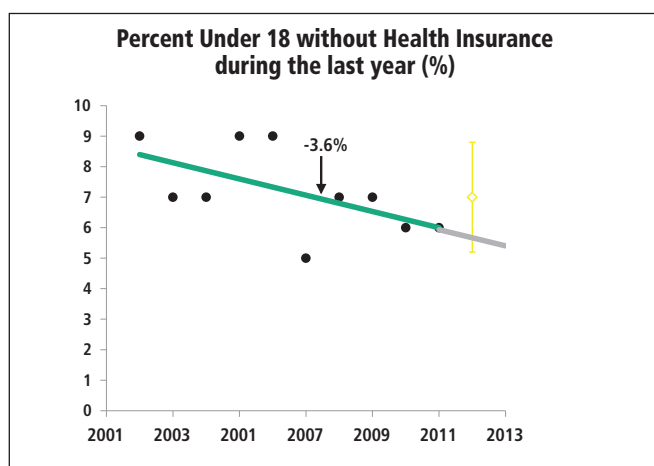
Current Rate (vs. Expected) = +6.9% Worse 




Clinical Care Trends

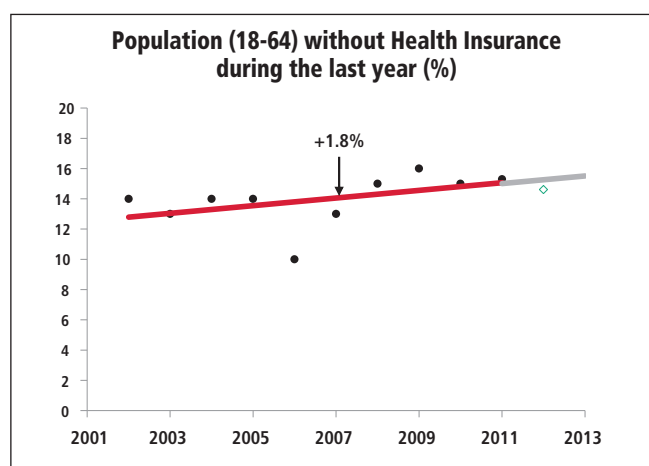
No Health Insurance (0-17)

Baseline Trend = -3.6%/year Much Better 



No Health Insurance (18-64)

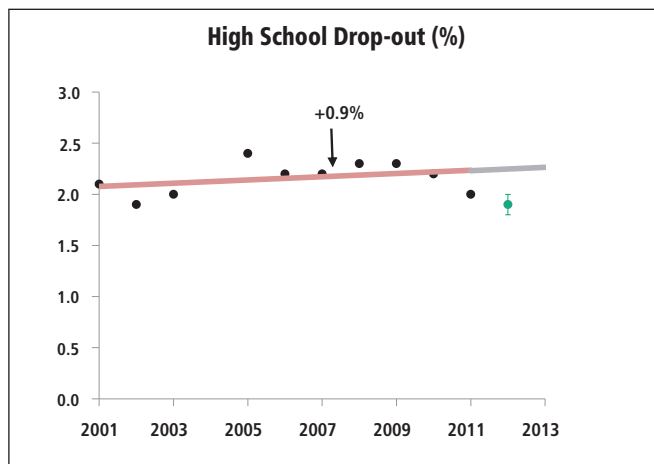
Baseline Trend = +1.8%/year Much Worse 



Social and Economic Trends

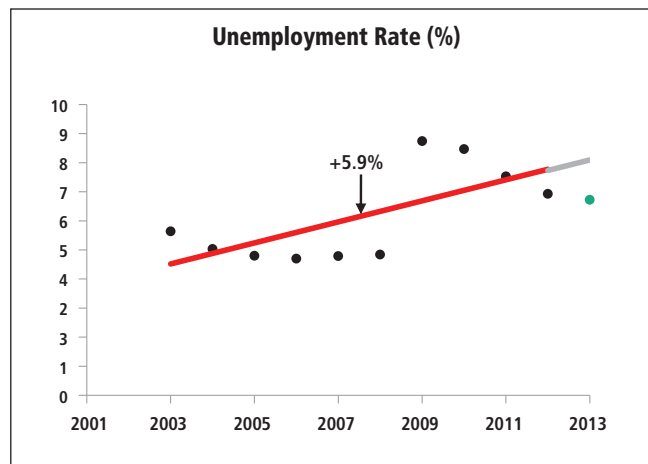
High School Drop-out

Baseline Trend = +0.9%/year Worse ↗
 Current Rate (vs. Expected) = -14.9% Better ●



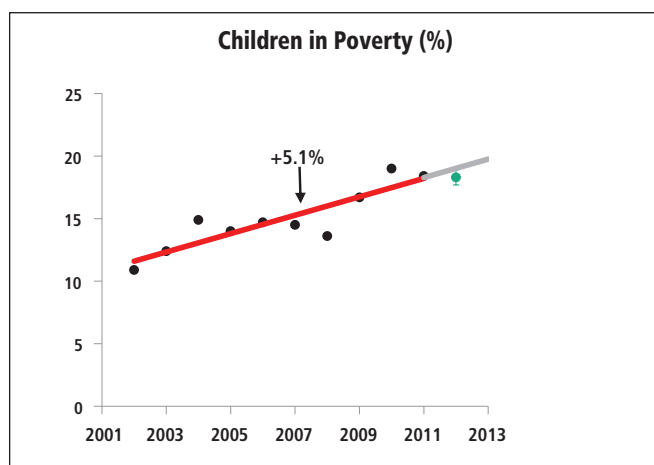
Unemployment Rate

Baseline Trend = +5.9%/year Much Worse ↗
 Current Rate (vs. Expected) = -17.0% Better ●



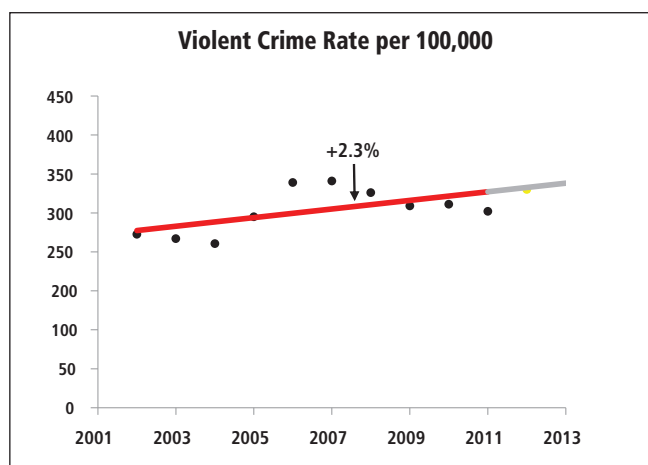
Children in Poverty

Baseline Trend = +5.1%/year Much Worse ↗
 Current Rate (vs. Expected) = -3.8% Better ●



Violent Crime Rate

Baseline Trend = +2.3%/year Much Worse ↗
 Current Rate (vs. Expected) = -0.9% No Difference ●

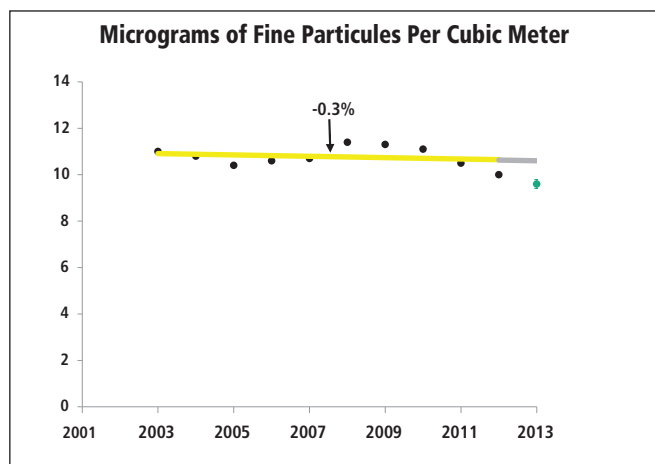


Physical Environment Trends

Air Pollution

Baseline Trend = -0.3%/year No Change →

Current Rate (vs. Expected) = -9.4% Better ●



Technical Notes

1. Due to methodological changes in sampling methods of the Behavioral Risk Factor Surveillance System (BRFSS) data from 2012, the 'current observed value' is not directly comparable to previous years for certain measures. The BRFSS methodology changed in 2011 but the dataset maintained a 'landline only' weighted variable allowing for a 2011 value that was comparable to previous years. For more information, please read the BRFSS Methodological Documents: <http://www.cdc.gov/surveillancepractice/reports/brfss/brfss.html>. To convey this difference, an open diamond is used instead of a circle for the 2012 value.

2. Due to changes to the sampling methods of the Family Health Survey data occurring in 2012 the 'current observed value' is not directly comparable to previous years. For more information, please read the Family Health Survey Technical notes for 2012: <http://www.dhs.wisconsin.gov/publications/P4/p45369b-12.pdf>. To convey this difference, a open diamond is used instead of a circle for the 2012 value.

3. Due to a lack of comparability, the High School Drop-out data does not include the 2003-2004 school year.

4. Linear trends are used in this report in order to have a standard method for assessing progress across different measures. However, there are limitations of using 10-year linear trends for several measures. For example, a) trends for shorter time periods (e.g., caused by a specific policy change) may not be reflected, b) some trends may not be linear, and c) the trend lines are determined using point estimates that may have large confidence intervals and so a trend line may misrepresent the real underlying trend.



Data Sources

Measure	Source	Current Year	Baseline Trend Years	Measure Definition
All ages death rate (per 100,000)	Wisconsin Interactive Statistics on Health	2012	2002-2011	Number of deaths age-adjusted to the 2000 U.S. Standard
Premature (<75) death rate (per 100,000)	Wisconsin Interactive Statistics on Health	2012	2002-2011	Years per life lost before 75 (YPLL-75): the sum of the difference between age 75 and the age of death for deaths that occurred prior to 75, (age-adjusted to 2000 population) per 100,000 population
Infant death rate (per 1,000 live births)	Wisconsin Interactive Statistics on Health	2012	2002-2011	Number of deaths before age 1 per 1,000 live births
1-24 year old death rate (per 100,000)	Wisconsin Interactive Statistics on Health	2012	2002-2011	Number of deaths between ages 1 and 24 per 100,000 age adjusted to the 2000 standard U.S. population
25-64 year old death rate (per 100,000)	Wisconsin Interactive Statistics on Health	2012	2002-2011	Number of deaths between ages 25 and 64 per 100,000 age adjusted to the 2000 standard U.S. population
65+ year old death rate (per 100,000)	Wisconsin Interactive Statistics on Health	2012	2002-2011	Number of deaths at 65 years of age or older per 100,000 age adjusted to the 2000 standard U.S. population
Low birthweight (%)	Wisconsin Interactive Statistics on Health	2012	2002-2011	Percentage of live births for which the infant weighed less than 2,500 grams (approximately 5 lbs., 8 oz.)
Self-reported poor or fair health (%)	Behavioral Risk Factor Surveillance System	2012 ¹	2002-2011	Responses of "fair" or "poor" to the survey question: "In general, would you say that your health is excellent, very good, good, fair, or poor?"
Smoking (%)	Behavioral Risk Factor Surveillance System	2012 ¹	2002-2011	Percentage of adults who are current smokers
Obesity (%)	Behavioral Risk Factor Surveillance System	2012 ¹	2002-2011	Percentage of adults with a Body Mass Index greater than or equal to 30kg/m ²
Excessive drinking (%)	Behavioral Risk Factor Surveillance System	2012 ¹	2002-2011	The percent of the adult population that consumed more than 4 (women) or 5 (men) alcoholic beverages on a single occasion in the past 30 days (binge drinking) or drank more than 1 (women) or 2 (men) drinks per day on average (heavy drinking)
Teen birth rate (per 1,000)	Wisconsin Interactive Statistics on Health	2012	2002-2011	Number of live births per 1,000 females aged 15-19
Chlamydia rate (per 100,000)	CDC Wonder	2011	2001-2010	Number of cases of chlamydia reported at all ages per 100,000 individuals
No health insurance (0-17) (%)	Family Health Survey	2012 ²	2002-2011	Percent of the population between ages 0 and 17 without continuous health insurance coverage during the past year
No health insurance (18-64) (%)	Family Health Survey	2012 ²	2002-2011	Percent of adults between ages 18 and 64 without continuous health insurance coverage during the past year
High school drop-outs (%)	National Center for Education Statistics	2012	2001-2011 ³	Count of drop-outs divided by the base enrollment for grades 9-12
Unemployment (%)	Bureau of Labor Statistics	2013	2003-2012 ⁴	Unemployed (individuals who do not have a job, have actively looked in the prior 4 weeks, and are currently available for work) divided by workforce
Children in Poverty (%)	Small Area Income and Poverty Estimates	2012	2002-2011 ⁴	The percent of children under age 18 living below the Federal Poverty Line
Violent crime rate (per 100,000)	Wisconsin Office of Justice Assistance	2012	2002-2011 ⁴	The number of violent offenses that involve face-to-face confrontation between the victim and the perpetrator per 100,000 population
Air Pollution (µg/m ³)	America's Health Rankings/ Environmental Protection Agency	2013	2003-2012 ⁴	The average exposure of the general public to particulate matter of 2.5 microns or less in size (PM _{2.5}) measured in µg/m ³

Note: See technical notes on p. 12



DEPARTMENT OF
Population Health Sciences
UNIVERSITY OF WISCONSIN
SCHOOL OF MEDICINE AND PUBLIC HEALTH

575 WARF Building • 610 Walnut Street • Madison, WI 53726-2397
Ph: 608.263.6294 • Fx: 608.262.6404 • <http://uwphi.pophealth.wisc.edu>